

APPENDIX G
INVENTORY STATUS



APPENDIX G

1.0 FEMP

Inventory Status

The production of uranium products for the DOE Weapons Program and other customers ceased operations at the FEMP in 1989. Since the early 1990s, the FEMP has been engaged in environmental restoration and waste management activities under the direction of DOE Environmental Management programs. In addition to remedial investigation, feasibility study, and remedial actions for the five FEMP Operable Units (OUs), the site has been actively involved with the management and disposition of low level and mixed wastes to DOE and commercial disposal sites and the disposition of nuclear materials to DOE and private sector customers.

Waste Management

As of March 31, 1999, the FEMP had an existing waste inventory of approximately 20 million net pounds of low level radioactive and mixed wastes. The FEMP utilizes a Microsoft Access based database to compile and identify wastes by categories, enrichments, generators and other pertinent information. This data base has the capabilities of being queried to develop Microsoft Excel based spreadsheets to display and present user defined data sorts. In order to compile the existing site inventory of wastes as of March 31, 1999, the FEMP Sitewide Waste Information, Forecasting, and Tracking System (SWIFTS) was queried to identify the onsite waste population. This query identified over 23,500 data records that were coded as FEMP wastes or nuclear materials. These data records were sorted and compiled into three Microsoft Excel worksheets that were used to develop the FEMP waste inventory position as required for this report. All four spreadsheets have been provided in electronic media form as an Excel file with the three compilation worksheets being presented below as Tables G-1 through G-3 below. The information and data from these three tables were used to develop the tables presented in Section 3.3 of the DOE Ohio Sites Recycled Uranium Project Report.

Nuclear Materials

Since the curtailment of production operations in the late 1980s, the FEMP has been responsible for the identification and dispositioning of nuclear materials. As part of the Nuclear Materials Disposition Program at the FEMP, an "Uranium Inventory Position at Fernald" is published on a monthly basis. The revised April 1, 1999 uranium position memorandum included as Attachment I of this appendix was used to develop the information needed to prepare tables and text to support the Section 3.3 discussions of existing inventory at the FEMP as of March 1, 1999.



TABLE G-1

FEMP ENRICHED WASTE INVENTORY AS OF MARCH 31, 1999

WASTE/MATERIAL TYPE DESIGNATION	Container Net Weight				Uranium Grams	%U235		U235 Grams
	Count	(pounds)	%U Low	%U High		Low	High	
ENRICHED ASBESTOS, <= 1% U235	91	44,293	0.01	0.50	14,696	0.720	0.990	112
ENRICHED ASBESTOS, > 1% U235	4	333	0.01	0.50	362	1.100	1.250	4
ENRICHED CHEMICAL TREATMENT WASTE <= 1% U235	357	186,703	0.01	10.00	252,603	0.750	0.990	2,355
ENRICHED CHEMICAL TREATMENT WASTE > 1% U235	23	9,742	0.01	50.00	68,787	1.000	1.250	773
ENRICHED COPPER, <= 1% U235	19	130,802	0.01	0.01	5,933	0.720	0.720	43
ENRICHED COPPER, > 1% U235	2	100	0.00	0.00	0	1.029	1.029	0
ENRICHED HAZ. LIQUIDS, <= 1% U235	115	36,938	0.01	0.50	4,645	0.720	0.990	42
ENRICHED HAZ. LIQUIDS, > 1% U235	11	2,847	0.01	0.02	171	1.250	1.250	2
ENRICHED HAZ. RESIDUES, <= 1% U235	232	71,581	0.01	70.00	10,147,628	0.736	1.000	93,493
ENRICHED HAZ. RESIDUES, > 1% U235	125	47,648	2.00	75.00	6,108,014	1.050	3.870	71,844
ENRICHED HAZ. TRASH/DEBRIS	8	1,081	0.01	0.01	49	0.750	0.990	0
ENRICHED HAZ. U3O8, > 1% U235	1	0	83.70	83.70	0	1.250	1.250	0
ENRICHED HAZ. WASTE, <= 1% U235	15	2,057	0.01	0.01	93	0.750	0.950	1
ENRICHED HG MATERIALS, <= 1% U235	2	356	0.01	0.01	16	0.990	0.990	0
ENRICHED LIQUIDS, <= 1% U235	100	30,038	0.01	1.00	3,455	0.711	0.990	34
ENRICHED LIQUIDS, > 1% U235	3	874	0.01	0.02	60	1.030	1.250	1
ENRICHED METALS, <= 1% U235	448	538,821	0.01	99.80	105,504,120	0.750	1.000	1,000,611
ENRICHED METALS, > 1% U235	154	124,851	0.05	98.55	32,320,464	1.016	1.250	403,789
ENRICHED MGF2, <= 1% U235	31	12,057	1.00	7.63	169,495	1.000	7.630	1,505
ENRICHED MGF2, > 1% U235	110	49,959	1.59	10.00	887,642	1.010	1.250	10,127
ENRICHED PIT WASTE, <= 1% U235	212	485,063	0.01	0.06	25,538	0.720	0.950	215
ENRICHED RESIDUES, <= 1% U235	4,194	2,216,720	0.01	100.00	218,141,436	0.720	1.000	1,955,341
ENRICHED RESIDUES, > 1% U235	1,412	655,024	0.01	99.80	45,156,011	1.002	19.990	547,827
ENRICHED SAMPLES, <= 1% U235	7	432	0.06	66.84	48,842	0.730	0.990	429
ENRICHED SAMPLES, > 1% U235	7	290	0.01	60.11	53,346	1.250	1.640	852
ENRICHED SOILS, <= 1% U235	1,063	749,155	0.01	7.39	1,543,527	0.720	0.990	14,503
ENRICHED SOILS, > 1% U235	351	968,610	0.01	6.59	294,924	1.060	1.250	3,652
ENRICHED TRASH/DEBRIS, <= 1% U235	497	692,864	0.01	2.68	421,231	0.720	0.990	3,396
ENRICHED TRASH/DEBRIS, > 1% U235	15	50,191	0.01	3.08	13,677	1.080	1.340	175
ENRICHED TREATED MIXED WASTE, <= 1% U235	150	132,315	0.01	4.26	157,573	0.737	1.000	1,362
ENRICHED TREATED MIXED WASTE, > 1% U235	10	28,613	0.01	2.62	34,123	1.069	1.250	421



Table G-1
(Continued)

WASTE/MATERIAL TYPE DESIGNATION	Container Count	Net Weight (pounds)	%U Low	%U High	Uranium Grams	%U235 Low	%U235 High	U235 Grams
ENRICHED UO ₂ , <= 1% U235	29	8,809	55.58	86.44	3,335,125	0.720	0.890	27,202
ENRICHED UO ₃ , <= 1% U235	160	14,304	0.01	83.90	5,309,993	0.800	0.990	46,336
ENRICHED UO ₃ , > 1% U235	1	407	82.20	82.20	151,750	1.100	1.100	1,669
ENRICHED U ₃ O ₈ , <= 1% U235	6	911	9.00	83.00	137,996	0.720	0.950	1,132
ENRICHED UF ₄ , > 1% U235	8	872	75.80	75.80	299,812	1.051	2.000	4,385
ENRICHED URANYL-NITRATE, <= 1% U235	1	50	1.00	1.00	227	0.990	0.990	2
TOTAL FOR ENRICHED WASTE/MATERIALS	9,974	7,295,711			430,613,362			4,193,636



TABLE G-2

FEMP NORMAL WASTE INVENTORY AS OF MARCH 31, 1999

Waste Designation	Container Count	Net Weight (pounds)	%U Low	%U High	Uranium Grams	%U235 Low	%U235 High	U235 Grams
NORMAL ASBESTOS	7	200	0.50	0.50	454	0.711	0.711	3
NORMAL CHEMICAL TREATMENT (ORGANIC) WASTE	4	995	0.01	27.39	62,887	0.711	0.711	447
NORMAL COPPER	1	42	0.05	0.05	10	0.711	0.711	0
NORMAL HAZ. WASTE	62	5,258	0.01	0.01	238	0.700	0.700	2
NORMAL LIQUIDS	34	12,562	0.01	0.01	570	0.711	0.711	4
NORMAL METALS	17	14,020	0.01	100.00	3,556,020	0.710	0.711	25,283
NORMAL MgF ₂	1	77	2.00	2.00	699	0.711	0.711	5
NORMAL PIT WASTE	2	76	0.01	82.20	23,117	0.700	0.711	162
NORMAL RESIDUES	164	89,202	0.01	100.00	2,941,423	0.710	0.711	20,913
NORMAL SAMPLES	9	491	0.01	65.33	120,262	0.711	0.711	855
NORMAL SILO WASTES	61	158,983	0.01	15.85	47,302	0.710	0.715	336
NORMAL SOILS	21	16,630	0.01	0.01	754	0.711	0.711	5
NORMAL TRASH/DEBRIS	150	156,182	0.01	82.00	191,546	0.700	0.711	1,362
NORMAL TREATED MIXED WASTE	1	554	0.01	0.01	25	0.711	0.711	0
NORMAL U ₃ O ₈	40	12,212	67.32	85.00	4,469,464	0.710	0.711	31,774
NORMAL UF ₄	1	472	76.63	76.63	164,061	0.710	0.710	1,165
NORMAL UO ₂	25	3,490	81.25	100.00	1,345,142	0.711	0.711	9,564
NORMAL UO ₃	10	902	64.29	82.00	328,103	0.711	0.711	2,333
TOTAL FOR NORMAL WASTE/MATERIALS	610	472,348			13,252,076			94,214



TABLE G-3

FEMP DEPLETED WASTE INVENTORY AS OF MARCH 31, 1999

WASTE/MATERIAL TYPE DESIGNATION	Container Count	Net Weight (pounds)	%U Low	%U High	Uranium Grams	%U235 Low	%U235 High	U235 Grams
DEPLETED ASBESTOS	570	1,002,597	0.00	2.60	1,545,709	0.000	0.690	7,669
DEPLETED CHEMICAL TREATMENT (ORGANIC) WASTE	1,083	568,351	0.01	86.30	2,611,955	0.100	0.700	8,575
DEPLETED COPPER	150	117,543	0.01	0.05	5,468	0.500	0.500	27
DEPLETED HAZ. LIQUIDS	501	362,486	0.01	0.50	25,943	0.200	0.700	130
DEPLETED HAZ. METALS	31	27,334	0.00	0.00	0	0.000	0.000	0
DEPLETED HAZ. RESIDUES	5	2,868	0.01	0.01	130	0.500	0.700	1
DEPLETED HAZ. SOILS	1	148	0.01	0.01	7	0.430	0.430	0
DEPLETED HAZ. TRASH/DEBRIS	16	1,411	0.01	0.19	123	0.200	0.690	1
DEPLETED HAZ. U3O8	122	52,038	25.00	78.46	13,417,242	0.200	0.670	80,609
DEPLETED HAZ. WASTE	64	14,699	0.01	50.00	297,216	0.000	0.690	1,150
DEPLETED LIQUIDS	539	174,213	0.01	0.10	8,766	0.200	0.700	44
DEPLETED METALS	1,499	1,387,204	0.01	100.00	620,806,962	0.000	0.700	1,239,074
DEPLETED MGF2	240	198,530	0.01	3.60	1,754,199	0.200	0.590	4,975
DEPLETED PIT WASTE	58	13,247	0.01	9.00	116,736	0.210	0.680	247
DEPLETED RESIDUES	2,482	3,168,945	0.00	100.00	111,966,629	0.000	0.702	288,810
DEPLETED SAMPLES	202	28,840	0.01	77.75	664,304	0.200	0.700	1,674
DEPLETED SOILS	1,848	2,069,964	0.00	8.90	267,030	0.000	0.700	1,370
DEPLETED TRASH/DEBRIS	2,507	2,476,446	0.00	75.84	169,692	0.000	0.700	708
DEPLETED TREATED MIXED WASTE	573	672,638	0.01	72.40	6,628,891	0.200	0.700	16,198
DEPLETED UO3	113	69,597	20.65	82.00	25,696,187	0.170	0.700	48,594
DEPLETED U3O8	99	54,037	0.69	85.00	18,753,016	0.141	0.500	73,704
DEPLETED UF4	165	180,840	45.00	93.42	62,037,823	0.140	0.700	97,643
TOTALS FOR DEPLETED WASTE/MATERIALS	12,868	12,643,975			866,774,029			1,871,202



2.0 RMI

There is no inventory identified for the RMI facility which is shown in Table ES-1B.

3.0 WVDP

There is no inventory identified for the WVDP facility which is shown in Table ES-1C.

4.0 WSSRAP

There is no inventory identified for the WSSRAP facility which is shown in Table ES-1D.



REVISION

INTEROFFICE MEMORANDUM

To:	Distribution	Date:	April 20, 1999
Location:	Fernald	Reference:	
From:	Bonnie Ison, MS50 ^{BO} Nuclear Materials Disposition	FD Fernald #:	M:WM:99-0136
Location:	Fernald	Client:	DOE DE-AC24-92OR21972
Extension:	648-5656	Subject:	URANIUM INVENTORY POSITION AT FERNALD AS OF APRIL 1, 1999

c: WMP Letter Log, MS52-3,
File Storage Project Number 70000-700.4

Jeff Barnett, MS52-9
Joel Bradburne, MS52-3
Dennis Carr, MS52-2
Dennis Cook, MS16-2
Ray Crawford, MS31
Matt Frost, MS16-2
Jamie Jameson, MS69
Randy Janke, DOE-FEMP, MS45
Connie Jones, MS42
Darrell Kirby, MS66

Mike Kopp, MS51
Charles Lower, MS50
Don Paine, MS52-4
Tisha Patton, MS76
Dave Rast, DOE-FEMP, MS45
Johnny Reising, DOE-FEMP, MS45
John Sattler, DOE-FEMP, MS45
Randy Shackelford, MS31
John Shine, DOE-FEMP, MS45
Steve Shirley, MS52-3
Shane Stierhoff, MS66

Attached is the uranium inventory position at the Fernald Site as of April 1, 1999. Please note that the container count for those product materials stored on skids (derbies and ingots) represents the skid as the container. The Sitewide Waste Information, Forecasting and Tracking Systems (SWIFTS) counts individual pieces for these items.

BEI/jac
Attachment

FERNALD SITE URANIUM INVENTORY
APRIL 1, 1999

DESCRIPTION	NO. CONTAINERS*	~NET WT.(LBS.)	U WT. (MTU)**
PRODUCT			
UO3			
NORMAL	1	48	0.0
ENRICHED	2,782	451,201	168.8
TOTAL UO3	2,783	451,249	168.8
UF4			
DEPLETED	14,701	4,281,501	1,471.9
NORMAL	43	14,174	4.6
ENRICHED	1,543	134,017	45.1
TOTAL UF4	16,287	4,429,692	1521.6
METAL			
DEPLETED	1,846	2,944,179	1335.2
NORMAL	481	424,332	188.8
ENRICHED	721	656,994	292.0
TOTAL METAL	3,048	4,025,505	1816.0
MISC. ENR. MATERIALS			
RECOVERABLE RESIDUES	2,211	966,995	294.0
UO2/U3O8	8	3,835	1.4
TOTAL MISC.MAT'L'S	2,219	970,830	295.4
TOTAL PRODUCT	24,337	9,877,276	3801.8
WASTE			
HOLDING ACCOUNT	23,993	12,441,197	1246.0
TOTAL WASTE	23,993	12,441,197	1246.0
TOTAL INVENTORY	48,330	22,318,473	5047.8

*CONTAINER COUNT IS FOR URANIUM INVENTORY ONLY.

** MTU - metric tons uranium; ACTUAL "BOOK" INVENTORY: 3801.8 MTU

TOTAL PRODUCT INVENTORY BY CATEGORY

	NO.CONTAINERS	NET WT.(LBS.)	U WT. (MTU)
DEPLETED	16,547	7,225,680	2807.1
NORMAL	525	438,554	193.4
ENRICHED (UP TO 19.99%)	7,265	2,213,042	801.3

INVENTORY REDUCTION MARCH: 0 MTU PRODUCT/ 0 MTU WASTE
FY 99 TO-DATE: 774.6 MTU PRODUCT/0 MTU WASTE

FERNALD SITE URANIUM INVENTORY

APRIL 1, 1999

DESCRIPTION	CONTAINER		NET LBS.	MTU	PLANT LOCATION
	TYPE	NO.*			
U03					
NORMAL	55-G DRUMS	1	48	0.0	1
ENRICHED	FULL HOPPERS	0	18,314	6.5	1,77
.82-1.00	55-DRUMS	38			
	85-G DRUMS	24			
	110-G DRUMS	1			
>1.00-1.25	55-G DRUMS	2,716			
	85-G DRUMS	3	432,887	162.3	1,77
TOTAL:		2,783	451,249	168.8	
UF4	FULL HOPPERS	64			
DEPLETED	10-G CANS	14,490	4,281,501	1471.9	PP, 1, 4B
	55-G DRUMS	120			
	85-G DRUMS	26			
	110-G DRUMS	1			
NORMAL	5-G CAN	0	14,174	4.6	1, 4B
	10-G CANS	15			
	55-G DRUMS	24			
	85-G DRUMS	4			
ENRICHED	5-G CAN	0	21,106	6.8	1,4B,
.72-1.00	10-G CANS	24			77
	55-G DRUMS	40			
	85-G DRUMS	24			
>1.00-2.00	5-G CAN	0	112,911	38.3	1,4B, 77
	10-G CANS	1,416			
	55-G DRUMS	34			
	85-G DRUMS	4			
	110-G DRUMS	1			
TOTAL:		16,287	4,429,692	1521.6	
METALS - DEPLETED					
DERBIES-MK31	SKIDS	1	1,311	0.6	1
INGOTS-MK31**	55-G DRUMS	11	740,070	335.6	1
	85-G DRUMS	4			
	BOXES	120			
CORES	BOXES	1,477	1,329,318	603.0	1
RECYCLE	DRUMS	37	873,480	396.0	1
	BOXES	175			
	SKIDS	21			
TOTAL:		1,846	2,944,179	1335.2	

*As -stored containers

** Due to repackaging efforts, some materials were recoded as 250 "copackaged uranium metal" which is causing crossover between recycle and ingot materials. For clarification, there is really 349 MTU (769,820) of product ingots, and 334 MTU (735,531 lbs.) of primary ingots.

FERNALD SITE URANIUM INVENTORY
APRIL 1, 1999

DESCRIPTION	CONTAINER		NET LBS.	MTU	PLANT LOCATION
	TYPE	NO.*			
METAL - NORMAL					
DERBIES	SKIDS	2	7,987	3.6	1
INGOTS	BOXES	29	41,041	18.6	1
CORES	DRUMS	41	30,584	13.9	
RECYCLE	DRUMS	303	344,720	152.7	1
	BOXES	106			
TOTAL:		481	424,332	188.8	
METAL - ENRICHED					
DERBIES 1.25	SKIDS	101	208,275	93.9	1
INGOTS .95	DRUMS	2	2,709	1.2	1
1.25	SKIDS	1	5,094	2.3	1
RECYCLE <1.00	DRUMS	336	244,115	107.1	1
	CANS	7			
>1.00	SKIDS	32	196,801	87.5	1
	DRUMS	242			
TOTAL:		721	656,994	292.0	
MISCELLANEOUS ENRICHED MATERIALS					
RECOVERABLE RESIDUES					
METAL AND OXIDES					
LESS THAN/EQUAL TO 1.00% U235		1,369	**720,132	220.4	
GREATER THAN 1% U235					1, 77, 79
(RANGE >1.00% - 19.99%)		842	246,863	73.6	80, TSS4-5-6,
TOTAL:		2,211	966,995	294.0	
ENRICHED UO2		6	2,261	0.8	1,77
ENRICHED U308		2	1,574	0.6	1
TOTAL:		8	3,835	1.4	
TOTAL MISC. ENR. MAT'LS		2,219	970,830	295.4	
TOTAL PRODUCT		24,337	9,877,276	3801.8	

*As-stored containers

**The increase in residues was due to clean-out materials.

FERNALD SITE URANIUM INVENTORY
APRIL 1, 1999

NONRECOVERABLE RESIDUES
(HOLDING ACCOUNT - NOT ON BOOK INVENTORY)

DEPLETED	ISOs+	180			
	DRUMS	10,016	7,284,967	791	1,54,56,63
	METAL BOXES	963			8,9,PP,RCRA
	WOOD BOXES	48			79,80,TS4-5-6
	SKIDS	209			
	CANS	237			
	T-HOPPERS	66			
	MISC	1372			
NORMAL	WOOD BOXES	0			
	ISOs	7			
	DRUMS	442	761,397	23	1,8, 56
	CANS	23			63,79,80
	METAL BOXES	35			
	T-HOPPERS	8			
	MISC	57			
ENRICHED	SKIDS	0			
	METAL BOXES	803	4,394,833	432	1,2,56,63,77
	T-HOPPERS	32			8,PP,RCRA
	DRUMS	9,004			79,80, TS4-5-6
	J-HOPPERS	20			
	CANS	44			
	WOOD BOXES	2			
	ISOs	67			
	MISC	358			

TOTAL HOLDING ACCT. WASTE	23,993	12,441,197	1,246
TOTAL INVENTORY	48,330	22,318,473	5,047.8

*As-stored containers.

NOTES:

CONTAINER COUNT IS BASED ON INFORMATION EXTRACTED FROM SWIFTS, EXCEPT:

—DOES NOT INCLUDE 402 CLEAN CONTAINERS CARRIED IN SWIFTS

—FOR PRODUCT, COUNTS "AS STORED" CONTAINER RATHER THAN PIECES AS IN SWIFTS.